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ENVIRONMENTAL MANAGEMENT

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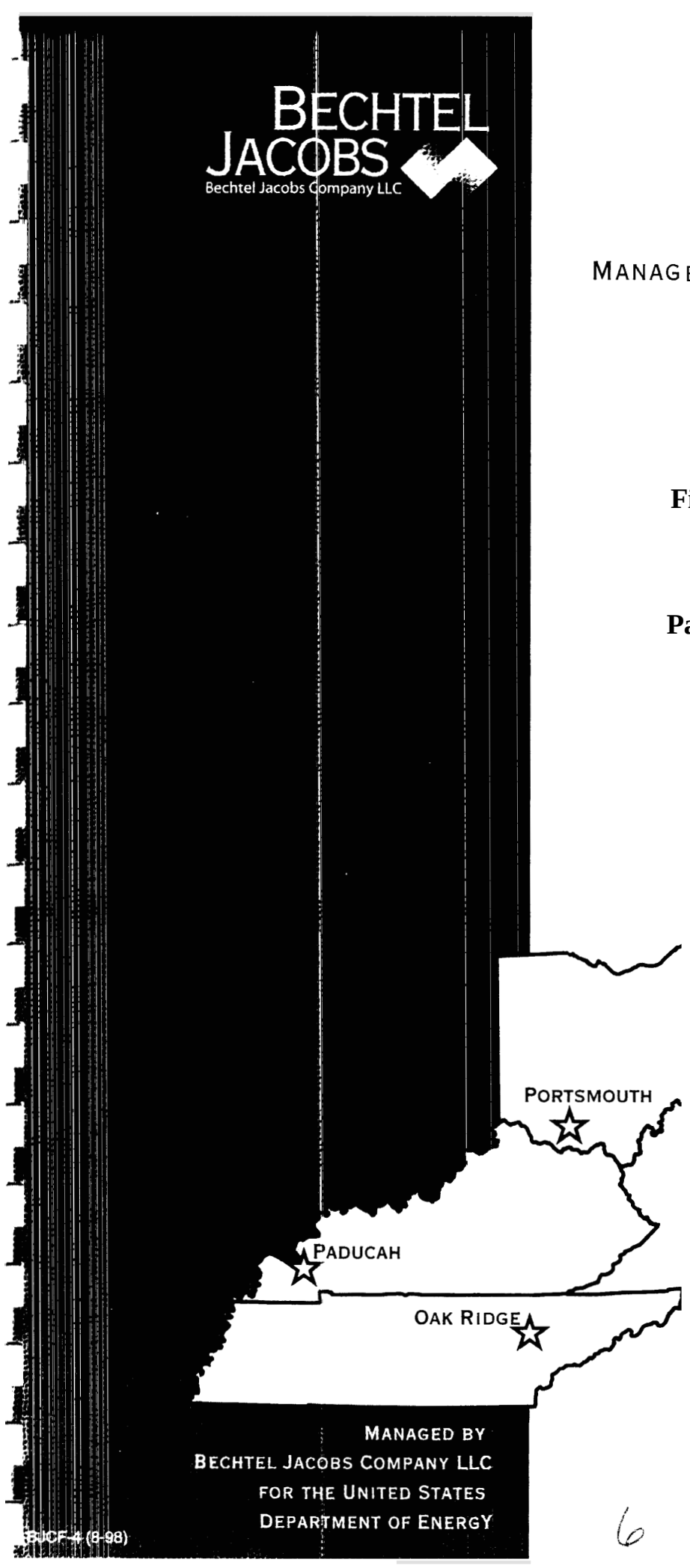
MANAGEMENT AND INTEGRATION CONTRACT

Final Inventory/Characterization Report for the OS-11 Department of Energy Material Storage Area at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky



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FOR THE UNITED STATES
DEPARTMENT OF ENERGY

BJCF-4 (8-98)

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This **document has** received the **appropriate** reviews **for** release to the **public.**

BJC/PAD-405

Final Inventory/Characterization Report for the OS-11 Department of Energy Material Storage Area (DMSA) at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky

Date Issued – September 16,2002

Prepared by
WESKEM, LLC
Under subcontract 23900-BA-RM005F
Prepared for the
US Department of Energy
Office of Environmental Management

BECHTEL JACOBS COMPANY LLC
managing the
Environmental Management Activities at the
East Tennessee Technology Park
Oak Ridge Y-12 Plant Oak Ridge National Laboratory
Paducah Gaseous Diffusion Plant Portsmouth Gaseous Diffusion Plant
Under contract DE-AC05-98OR22700
for the
U.S. DEPARTMENT OF ENERGY

This report is an abridged edition. The following sections have been omitted from this report, but are included in the full report.

OS-1 1 DMSA ZONE MAP

HP SURVEY DATA

SME INSPECTION / SAMPLING SUMMARY

OREIS CHARACTERIZATION REPORT

RFD FORMS

D & D CHARACTERIZATION FORMS

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ACRONYMS

ACM	Asbestos Containing Material
ADC	Authorized Derivative Classifier
BEF	Equipment Field Blank
D&D	Decontamination and Decommission
DMSA	Department of Energy Material Storage Area
DOE	Department of Energy
dpm	Disintegrations per Minute
ft^2	Square Feet
ft^3	Cubic Feet
HP	Health Physics
IH	Industrial Hygiene
lbs	Pounds
Lc	Level Sub C
LLW	Low Level Waste
MDA	Minimum Detectible Activity
MS	Matrix Spike
NCS	Nuclear Criticality Safety
OREIS	Oak Ridge Environmental Information System
OS	Outside
PCB	Polychlorinated Biphenyl
PEL	Permissible Exposure Limits
PGDP	Paducah Gaseous Diffusion Plant
RCRA	Resource Conservation and Recovery Act
RFD	Request for Disposal
RMA	Radioactive Material Area
RPD	Relative Percent Difference
SME	Subject Matter Expert
SVOA	Semi-volatile Organic Analysis
SWMU	Solid Waste Management Unit
TCLP	Toxicity Characteristic Leaching Procedure
TIO	Technical Information Officer
TLV	Threshold Limit Value
TSCA	Toxic Substances Control Act
USEC	United States Enrichment Corporation
VOA	Volatile Organic Analysis

EXECUTIVE SUMMARY

The Department of Energy Material Storage Area **(DMSA)** Outside (OS)-11 is located in an area east of the C-410 facility and west of the C-651 pump house and cooling tower. It occupies approximately 1,738 square feet (ft^2). This **DMSA** is also Solid Waste Management unit (SWMU) #222. OS-11 was initially identified as a Phase 1 **DMSA** (expected to have no fissionable material but not fully characterized). The characterization process started in October 2001 and was completed in April 2002. The **DMSA** contains a sulfuric acid tank in a containment dike. The dike has a bed of crushed limestone. Approximately 3,425 gallons of water was pumped from the dike into storage tanks. Numerous small items of used equipment/debris were also in the DMSA. The majority of the smaller items were identified on a container log sheet and placed in a ST-90 box. This DMSA was divided into two zones for more efficient work practices. The **DMSA** material occupies a volume of approximately 1,354 cubic feet (ft^3) with a weight of approximately 52,120 pounds (lbs). This DMSA now qualifies as a Phase **3** DMSA since it has been fully characterized and contains no fissionable material.

RCRA/Mixed

There were several Resource Conservation Recovery Act (RCRA) and RCRA/Mixed items of concern that were promptly reported and managed appropriately during the characterization activities. The RCRA items were gasoline drained from a pump, two lead battery cables and a lightbulb base. The RCRA/Mixed materials were waste oils removed from equipment. All of the material was transported to the C-752-A RCRA permitted storage facility.

TSCA/PCB/ACM

A hydraulic ram/bender in the DMSA was drained. The oil/water mixture from the ram/bender was determined to be Toxic Substances Control Act (TSCA) /polychlorinated biphenyl (PCB)/low level waste (LLW) which required classification of the ram also as PCB/LLW. The oil/water mixture was consumed during the laboratory analysis. Two asbestos containing materials (ACM) identified as cloth and cloth tape were also found and abated. All of the TSCA regulated materials were transferred to the C-752-A facility.

LLW

All of the material (other than the lightbulb base, battery cables, and gasoline) in this DMSA was classified as LLW. This includes the water pumped from the dike. All items of equipment were given barcode identification for future inventory control and equipment location reference. All of the LLW (with the exception of the dike water) remains in the **DMSA.** The water was transferred to the C-752-A facility.

D&D

The sulfuric acid storage tank was initially a concern due to corrosion and leakage of material from openings in the tank wall. The openings were sealed to prevent further leakage. The tank was opened for evaluation of material within. The liquid was determined to be condensate observed as droplets on the interior wall of the tank. The residual material in the tank was a solid crystalline substance that was sampled and characterized as nonhazardous. Paint chips from the **tank's** exterior were tested and determined to be nonhazardous. Additional handling of the tank will occur during the Decontamination and Decommission (D&D) process. The tank will remain in the DMSA.

NCS

There were no Nuclear Criticality Safety **(NCS)** concerns identified in this DMSA.

IH

All Industrial Hygiene (IH) data has been reviewed. All quality control samples were within normal acceptable guidelines. No personnel were exposed to any airborne concentrations above a permissible exposure limit (PEL) or threshold limit value (TLV).

HP

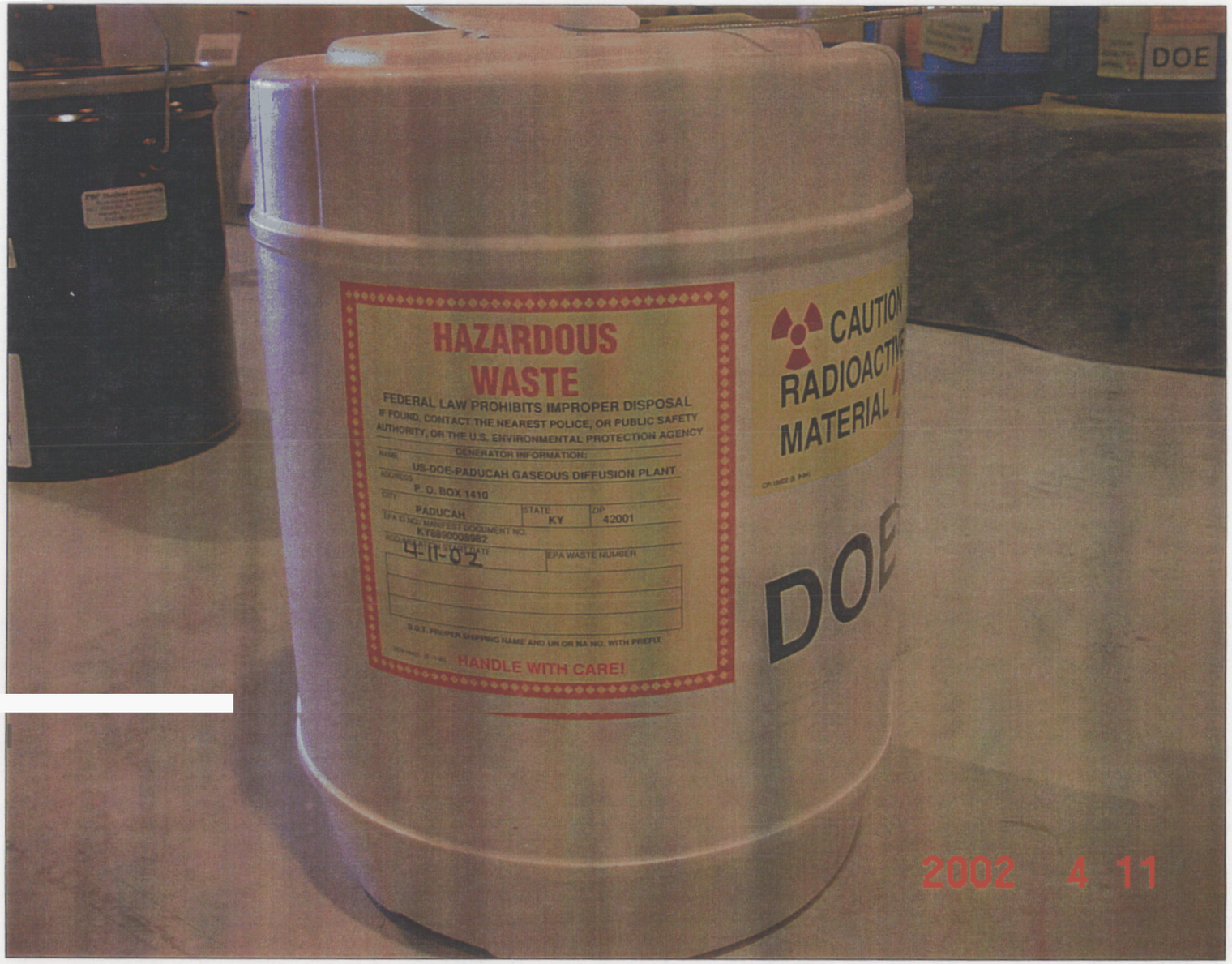
The Health Physics (HP) radiological surveys concluded the highest Alpha reading was 459 disintegrations per minute (dpm)/100 cm^2 and the highest Beta/Gamma reading was 1,426 dpm/100 cm^2. The readings were taken on the Sulfuric Acid Tank.

Safety

There were no safety related events during the characterization process. Safety concerns were reviewed prior to the start of the activity with all involved personnel and any concerns expressed were incorporated in the safety plan. All workers had stop work authority to assure unusual or unexpected work situations could be evaluated before proceeding. A safety officer was in attendance during all phases of the activity to monitor performance and provide safety related input to the workers.

All actions involved in this characterization were documented and the documents have been retained in permanent files. Part of this documentation also included photographs **of** items in the DMSA. Some of these photographs are included in this report. The remaining photographs are on file.

DMSA OS-11 **Oil** Removed as Hazardous Waste

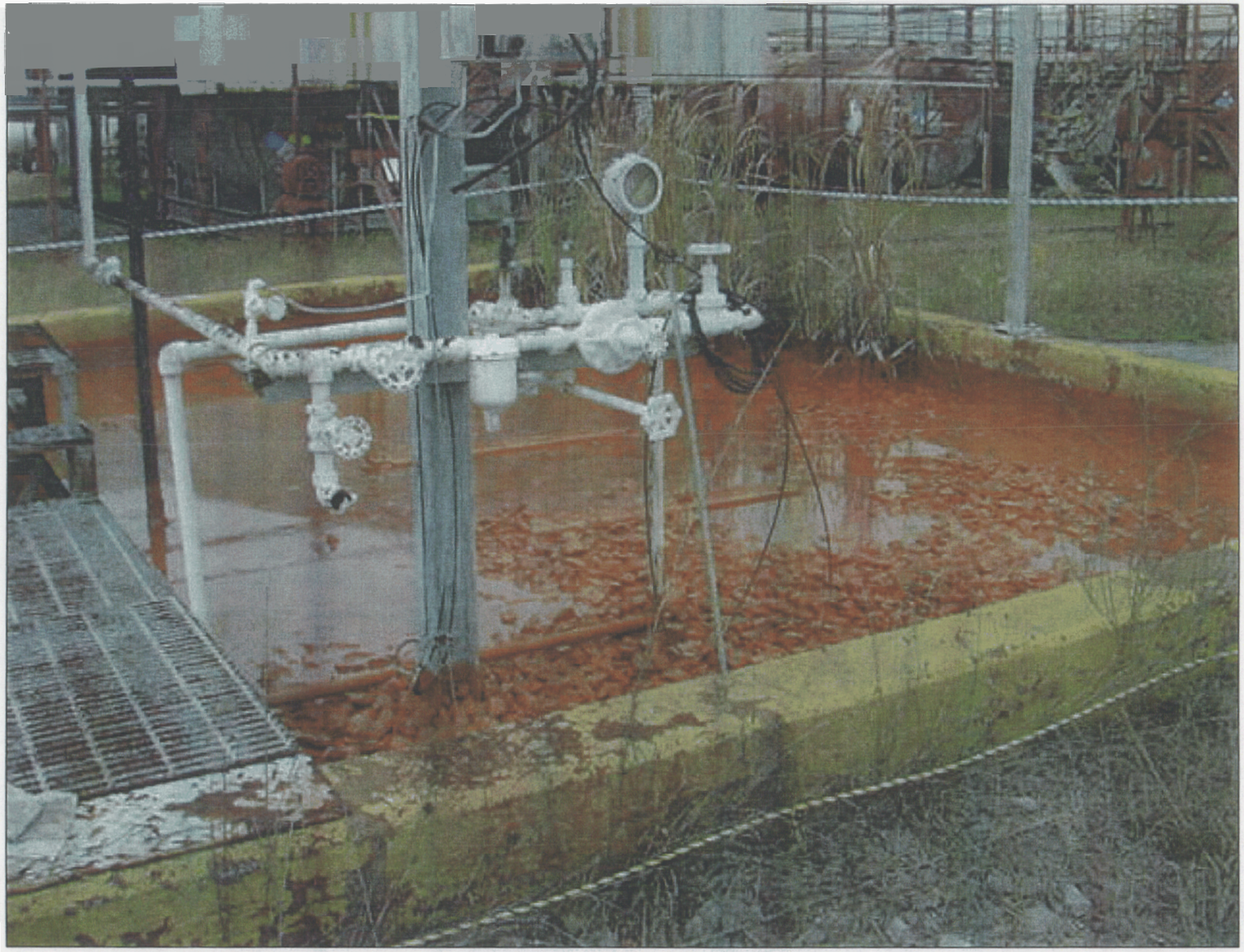


DMSA OS-1 ▮ Personnel Inspecting Sulfuric Acid Tank

DMSA OS-11 Maintenance Activities on Sulfuric Acid Tank

DMSA OS-1 Waste Characterization Activities

DMSA OS-1 ▌Diked Area Under Sulfuric Acid Tank



DMSA OS-11 Sulfuric Acid Tank Maintenance Activities

Inventory And Characterization Report

Curr. Zone	Item ID	Barcode #	Description	Vol. ft3	tsca non	tsca mix	rcra non	rcra mix	llw	asb	fis	lnd	Gen. Date	Char. Date	Transferred To
OS-11															
	110876-01		WASTE WATER	480	☐	☐	☐	☐	☑	☐	☐	☐	10/24/01	10/24/01	C-752-A
	110889-01	DMSA0111160	ANTIFREEZE DRAINED FROM GASOLINE GENERATOR.	0.67	☐	☐	☐	☐	☑	☐	☐	☐	10/31/01	10/31/01	
	110890-01		HYDRAULIC OIL & H20 CONSUMED IN LAB ANALYSIS	0	☐	☑	☐	☑	☐	☐	☐	☐	11/1/01	11/1/01	
	110891-01		LEAD BATTERY CABLE ENDS.	0.006	☐	☐	☐	☐	☐	☐	☐	☐	11/1/01	11/1/01	C-752-A
	111421-01		GASOLINE DRAINED FROM H20 PUMP.	0.67	☐	☐	☑	☐	☐	☐	☐	☐	11/15/01	11/15/01	C-733
	111531-01	DMSA0111265	RUBBER HOSES.	3	☐	☐	☐	☐	☑	☐	☐	☐	12/19/01	12/19/01	
	111532-01		ONE LIGHT BULB BASE	0.17	☐	☐	☑	☐	☐	☐	☐	☐	12/20/01	12/20/01	C-752-A
ZONE 11	110884-01	DMSA0111261	HYDRAULIC RAM BENDER	3	☐	☑	☐	☐	☐	☐	☐	☐	10/16/01	10/16/01	C-752-A
ZONE B	110880-01	DMSA0111257	ASBESTOS CLOTH	1	☐	☐	☐	☐	☑	☑	☐	☐	10/16/01	10/16/01	C-752-A
ZONE B	110881-01	DMSA0111258	ASBESTOS CLOTH TAPE	1	☐	☐	☐	☐	☑	☑	☐	☐	10/16/01	10/16/01	C-752-A
ZONE B	110882-01	DMSA0111259	FIBERGLASS UDDERS	20	☐	☐	☐	☐	☐	☐	☐	☐	10/16/01	10/16/01	
ZONE B	110883-01	DMSA0111260	H20 PUMP	4	☐	☐	☐	☐	☑	☐	☐	☐	10/16/01	10/16/01	
ZONE B	110885-01	DMSA0111262	WOOD PALLETS	8	☐	☐	☐	☐	☑	☐	☐	☐	10/16/01	10/16/01	
ZONE B	110886-01		3 WOODEN RAILROAD TIES/PIECES	10	☐	☐	☐	☐	☑	☐	☐	☐	10/16/01	10/16/01	
ZONE B	110887-01	DMSA0111264	2 LADDERS	2	☐	☐	☐	☐	☑	☐	☐	☐	10/16/01	10/16/01	

Legend

asb	Asbestos	Char	Characterization Date	fis	Fissionable
Gen	Generation Date	llw	Low Level Waste	lnd	Landfill
mix	Mixed Waste	rcra	Resource Conservation Recovery Act	tsca	Toxic Substances Control Act

Curr. Zone	Item ID	Barcode #	Description	Vol. ff3	tscu non	tscu mix	rcra non	rcra mix	llw	asb	fis	Ind	Gen. Date	Char. Date	Transferred To
ZONE 11	111526-01		DRY PAINT CHIPS CONSUMMED BY SAMPLING EVENT	0	☐	☐	☐	☐	☑	☐	☐	☐	11/16/01	11/16/01	
ZONE 5	110888-01	PAD02C05102	OIL DRAINED FROM GASOLINE WATER PUMP.	0.67	☐	☐	☐	☐	☐	☐	☐	☐	11/6/01	11/6/01	C-752-A
ZONE B	110877-01	DMSA0111252	DMSA TRASH. ST90 BOX	80	☐	☐	☐	☐	☐	☐	☐	☐	10/10/01	10/10/01	
ZONE B	110878-01	DMSA0111253	GASOLINE ENGINE AND GENERATOR.	40	☐	☐	☐	☐	☑	☐	☐	☐	10/10/01	10/10/01	

Summary for OS-11 *(19 RFDs)* *654.186 Ft3*

Grand Total ***(19 RFDs)*** ***654.186 Total Ft3***

WASTE REMOVED FROM OS-11 DMSA

Waste Material	Original RFD #	Material Classification	Column #	Barcode	# Items	Estimated Volume (ft^3)	Estimated Weight (lbs)	Material Transferred to USEC
Asbestos Cloth (Abatement)	110880	ACM/LLW	C-752A	PAD01C02949	1	1	5	No
Asbestos Cloth Tape (Abatement)	110881	ACM/LLW	C-752A	PAD01C02949	1	1	10	No
Hydraulic Ram Bender	110884	TSCA/PCB/ LLW	C-752A	DMSAOI11261	1	3	150	No
Waste Oil Drained from Gas Generator	110888	RCRA/Mixed	C-752A	PAD02C05102	1	0.67	5	No
Hydraulic Oil and Water Drained from Hydraulic Ram	110890	PCB/ RCRA/Mixed	Consumed in Sampling Process	PAD02C05259	1	0	0	No
(2) Lead-Battery Cable ends removed from RFD #110878	110891	RCRA	C-752A	PAD01C03801	1	0.006	0.25	No
Gasoline Drained from RFD 110883-01	111421	RCRA	C-733	PAD01C03802	1	0.67	5	No
(1) Lightbulb Base	111532	RCRA	C-752A	PAD01C03801	1	0.17	5	No

Total Estimated Volume (ft3)	*Total Estimated Weight (lbs)*
6.576	***780.25***

OS-11 DMSA INVENTORY

Description	Original RFD #	Material Classification	Column #	Barcode	# Items	Estimated Volume (ft^3)	Estimated Weight (lbs)	Material Transferred to USEC
Waste H_20	110876	LLW	C-752A	PAD01C02952 PAD01C02953 PAD01C02954	3	480	30,000	No
ST-90 Box	110877	LLW	OS-11-B	DMSAOI11252	1	80	800	No
Gasoline Engine and Generator	110878	LLW	OS-11-B	DMSAOI11253	[illegible]	40	600	No
Asbestos Cloth (Abatement)	[illegible]10880	ACM/LLW	C-752A	PAD01C02949	[illegible]	[illegible]	5	No
Asbestos Cloth Tape (Abatement)	110881	ACM/LLW	C-752A	PAD01C02949	1	1	10	No
Ladders	110882	LLW		DMSAOI11259	1	20	100	No
H_20 Pump	[illegible]10883	LLW	OS-11-B	DMSAOI11260	[illegible]	4	75	No
Hydraulic Ram Bender	110884	TSCA/PCB/ LLW	C-752A	DMSAOI11261	[illegible]	3	150	No
(2) Wooden Pallets	110885	LLW	OS-11-B	DMSAOI11262	1	8	60	No
(3) Wooden Railroad Ties/Pieces	110886	LLW	OS-11-B	DMSAOI11263	1	10	260	No
(2) Ladders	110887	LLW	OS-11-B	DMSAOI11264	1	2	15	No
Waste Oil Drained from Gas Generator	110888	RCRA/Mixed	C-752A	PAD02C05102	1	0.67	5	No
Anti-freeze Drained from Gasoline Generator	110889	LLW	OS-11-B	DMSAOI [illegible]1160	[illegible]	0.67	5	No

	Subtotal Volume (ft^3)	*Subtotal Est. Weight (lbs)*
	650.34	***32,085***

Legend
OS-11-A = Zone 1
OS-11-B = Zone 2

Description	Original RFD #	Material Classification	Column #	Barcode	# Items	Estimated Volume (ft^3)	Estimated Weight (lbs)	Material Transferred to USEC
Hydraulic Oil and Water Drained from Hydraulic Ram	110890	PCB/ RCRA/Mixed	Consumed in Sampling Process	PAD02C05259	1	0	0	No
(2) Lead-Battery Cable ends removed from RFD #110878	110891	RCRA	C-752A	PAD01C03801	1	0.006	0.25	No
Gasoline Drained from RFD 110883-01	111421	RCRA	c-733	PAD01C03802	1	0.67	5	No
(1) Liter Bottle Dry Paint from DD0009 Sulfuric Acid Tank	111526	LLW	Consumed in Sampling Process	N/A	1	0	0	No
Miscellaneous Rubber Hoses - Inside Diked Area	111531	LLW	OS-1I-B	DMSA0111265	1	3	25	No
(1) Lightbulb Base	111532	RCRA	C-752A	PAD01C03801	1	0.17	5	No

Grand Totals ***654.79*** **32,720**

Legend
OS-11-A ≡ Zone 1
OS-11-B ≡ Zone 2

Description	Original DD#	Barcode	# Items	Estimated Volume (ft^3)	Estimated Weight (lbs)	Material Transferred to USEC
Sulfuric Acid Tank and Associated Equipment	DD0009	DMSA0111432	1	700	20,000	No

Total Estimated Volume (ft3)	*Total Estimated Weight (lbs)*
700	***20,000***

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